

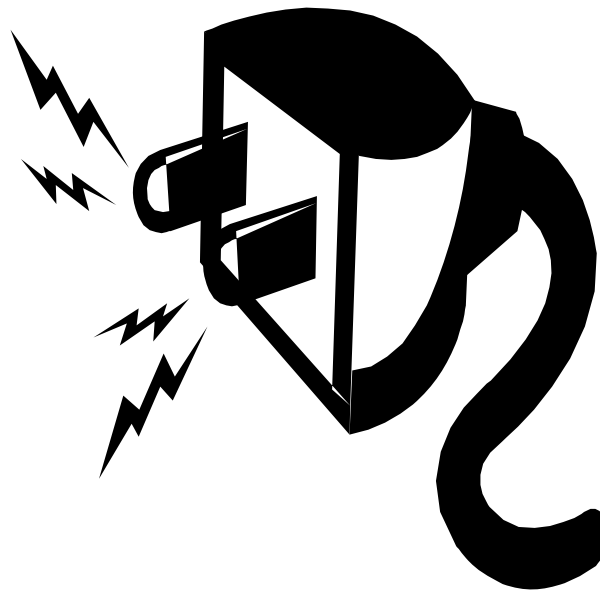


**Department of Labor & Economic Growth**

# **ELECTRICAL CODE RULES**

## **Part 8**

INCORPORATING THE **2005** EDITION OF  
THE NATIONAL ELECTRICAL CODE



**BUREAU OF CONSTRUCTION CODES**  
**P.O. Box 30254**  
**Lansing, Michigan 48909**  
[www.michigan.gov/bcc](http://www.michigan.gov/bcc)

*Providing for Michigan's Safety in the Built Environment*

## INTRODUCTION

The Bureau of Construction Codes has amended the Construction Code Rules, Part 8. All units of government that administer and enforce the electrical code shall enforce the amended state electrical code effective November 23, 2007.

The rules adopt by reference the National Electrical Code, 2005 edition, and include deletions, additions, and amendments to the national code. The deletions, additions, and amendments are set forth in this publication.

**How to use this publication:** The state electrical code rules are published in code section order for use with the National Electrical Code, 2005 edition.

The National Electrical Code, 2005 edition, is adopted by reference in R 408.30801 (page 1). The provisions set forth in this publication are either added to the national code or amend the national code.

Each section has been provided with a title for indexing purposes. These titles may not be identical to the titles used in the promulgated rule set.

**Additional copies of the Part 8 rules** are available from the Michigan Department of Labor & Economic Growth, Bureau of Construction Codes (BCC), P.O. Box 30255, Lansing, Michigan 48909 for a cost of \$5.00, or may be downloaded for free from the bureau's website at [www.michigan.gov/bcc](http://www.michigan.gov/bcc). The 2005 National Electrical Code (NEC) may be purchased from the National Fire Protection Association, Batterymarch Park, Quincy, Massachusetts 02269, or from BCC, at a cost as of the time of adoption of these rules of \$72.50 each. You may also purchase the 2005 NEC with a complete copy of the Michigan Part 8 rules from BCC at a cost of \$75.00. Please make checks payable to the State of Michigan.

*Printed under the authority of*

1972 PA 230

Paid with State Construction Code Funds

Total Printed: 1,000  
Date Printed: 9/6/07  
Printing Cost: \$1,385.88  
Per Copy Cost: \$1.39  
BCC-PUB 0500 (9/07)

# TABLE OF CONTENTS

<b>Construction Code</b> .....	1
Part 8 - Electrical Code .....	1

## **ARTICLE 80 - ADMINISTRATION AND ENFORCEMENT**

80.1	Scope .....	2
80.1.1	Intent .....	2
80.1.2	Severability .....	2
80.1.3	Code conformity required .....	2
80.3	Purpose .....	2
80.9	Application .....	2
80.11	Occupancy of building or structure .....	3
80.13	Authority .....	3
80.14	Duties and powers of the code official .....	3
80.15	Means of appeal .....	3
80.15.1	Limitation of authority .....	3
80.18	Maintenance of existing wiring .....	4
80.18.1	Disconnection of dangerous electrical equipment .....	4
80.19	Permits and certificates .....	4
80.19.1	To whom permits are issued .....	4
80.19.2	Application for permit.....	5
80.19.3	Permit expiration .....	5
80.19.4	Uncompleted installation notification .....	5
80.19.5	Inspection and refunds for partial installation .....	6
80.19.6	Owner notification to enforcing agency.....	6
80.19.7	Transfer of permit .....	6
80.19.8	Fraudulent application for permit .....	6
80.20	Representative on jobsite .....	6
80.20.1	Licensed supervision required .....	6
80.21	Plans and specifications .....	6
80.21.1	Preparation of plans .....	7
80.21.2	Review of construction documents .....	7
80.22	Scheduling inspection.....	7
80.22.1	Inspection notice .....	7
80.22.2	Concealing electrical installation .....	7
80.23	Violations .....	7
80.24	Fees .....	8
80.25	Connection to electricity supply .....	8
80.26	Service equipment.....	8

## **ARTICLE 90 - INTRODUCTION**

90.3	Code arrangement .....	8
90.4	Enforcement .....	8
90.6	Formal interpretations.....	9

<b>ARTICLE 100 - DEFINITIONS.....</b>	<b>9</b>
<b>ARTICLE 110 - REQUIREMENTS FOR ELECTRICAL INSTALLATIONS</b>	
110.2    Approval .....	10
<b>ARTICLE 230 - SERVICES</b>	
230.40    Number of service-entrance conductor sets .....	10
230.71(A) General.....	10
<b>ARTICLE 250 - GROUNDING</b>	
250.118    Types of equipment grounding conductors.....	11
<b>ARTICLE 300 - WIRING METHODS</b>	
300.3(b)(5) Grounded and ungrounded conductor sources.....	11
<b>ARTICLE 334 - NONMETALLIC-SHEATHED CABLE: TYPES NM, NMC, AND NMS</b>	
334.10    Uses permitted .....	11
<b>ARTICLE 348 - FLEXIBLE METAL CONDUIT</b>	
348.60    Grounding of flexible metal conduit .....	12
<b>ARTICLE 350 - LIQUIDTIGHT FLEXIBLE METAL CONDUIT AND LIQUIDTIGHT FLEXIBLE NONMETALLIC CONDUIT</b>	
350.60    Grounding of liquidtight flexible metal conduit .....	12

## DEPARTMENT OF LABOR AND ECONOMIC GROWTH

### DIRECTOR'S OFFICE

### CONSTRUCTION CODE

These rules take November 23, 2007.

(By authority conferred on the director of the department of labor and economic growth by section 4 of 1972 PA 230, MCL 125.1504, and Executive Reorganization Order Nos. 1996-2 and 2003-1, MCL 445.2001 and 445.2011)

R 408.30801, R 408.30808, R 408.30809, R 408.30810, R 408.30812, R 408.30818, R 408.30819, R 408.30823, R 408.30826, R 408.30828, R 408.30835, R 408.30867, R 408.30868, R 408.30869 and R 408.30873 of the Michigan Administrative Code are amended and R 408.30806, R 408.30821 and R 408.30834, are added to the Code as follows:

### PART 8. ELECTRICAL CODE

**Rule 801. National electrical code; adoption by reference; inspection; purchase.**

The standards contained in the national electrical code, 2005 edition, except sections 501.30B, 502.30B, 503.30B, 505.25B, 506.25B, 547.1 to 547.10, and Annex G, as published by the national fire protection association, shall govern the installation, replacement, alteration, relocation, and use of electrical systems or material. With the exceptions noted, the national electrical code is adopted in these rules by reference. Fine print notes contained within the body of the code are not adopted as a part of the code. All references to the ANSI/ASME A17.1 2004, Safety Code for Elevators and Escalators means the Michigan Elevator Code and all references to the National Electrical Code means the Michigan Electrical Code. The code is available for inspection at the Okemos office of the Michigan department of labor and economic growth, bureau of construction codes. The National Electrical Code may be purchased from the National Fire Protection Association, Batterymarch Park, Quincy, Massachusetts 02269, or from the Michigan Department of Labor and Economic Growth, Bureau of Construction Codes, 2501 Woodlake Circle, Okemos, Michigan 48864, at a cost as of the time of adoption of these rules of \$72.50 each.

**R408.30801**

**Rule 805. Rescission** Rules 41 through 77 of the rules of the electrical administrative board, being R338.1041 to R 338.1077 of the Michigan Administrative Code, are rescinded.

**R 408.30805**

## TITLE

**Rule 807. Title** These rules shall be known as the Michigan electrical code, hereinafter referred to as "the code."  
R 408.30807

## ARTICLE 80 ADMINISTRATION AND ENFORCEMENT

**80.1. Scope.** The code regulates the design, installation, maintenance, alteration, and inspection of electrical systems including all wiring, fixtures, appliances, and appurtenances in connection with the utilization of electrical energy, within or on a building, structure, or properties, and including service entrance wiring as defined by the code.

**Exception:** Electrical wiring and equipment within 1- and 2-family dwellings shall be constructed, installed, and maintained in accordance with the Michigan residential code.

**80.1.1. Intent.** The purpose of the code is to provide minimum standards to safeguard life or limb, health, property, and public welfare by regulating and controlling the design, construction, installation, quality of materials, location, operation, and maintenance or use of electrical wiring and equipment.

**80.1.2. Severability.** If a section, subsection, sentence, clause, or phrase of the code is, for any reason, held to be unconstitutional, such decision shall not affect the validity of the remaining portions of the code.

**80.1.3. Code conformity required.** A person shall not install, alter, maintain, service, or repair, or cause or permit the installation, altering, maintaining, servicing, or repairing of electrical equipment in or on any building, structure, or part thereof, or on any premises, if by the person's action the work does not conform to the provisions of the code.  
R 408.30808

**80.3. Purpose.** The purpose of this article shall be to provide requirements for administration and enforcement of the Michigan electrical code.  
R 408.30809

### **80.9. Application.**

(a) New installations. The code applies to new installations. Buildings with construction permits dated after adoption of the code shall comply with its requirements.

(b) Existing installations. Existing electrical installations that do not comply with the provisions of the code shall be permitted to be continued in use unless the authority having jurisdiction determines that the lack of conformity with the code presents an imminent danger to occupants. Where changes are required for

correction of hazards, a reasonable amount of time shall be given for compliance, depending on the degree of the hazard.

(c) Additions, alterations, or repairs. Additions, alterations, or repairs to any building, structure, or premises shall conform to that required of a new building without requiring the existing building to comply with all the requirements of the code. Additions, alterations, installations, or repairs shall not cause an existing building to become unsafe or to adversely affect the performance of the building as determined by the authority having jurisdiction. Electrical wiring added to an existing service, feeder, or branch circuit shall not result in an installation that violates the provisions of the code in force at the time the additions are made.

R 408.30806

#### **80.11. Occupancy of building or structure.**

(a) New construction. No newly constructed building may be occupied in whole or in part in violation of the provisions of the code.

(b) Existing buildings. Existing buildings that are occupied at the time of adoption of the code shall be permitted to remain in use provided the following conditions apply:

(1) The occupancy classification remains unchanged.

(2) There exists no condition deemed hazardous to life or property that would constitute an imminent danger.

R 408.30821

**80.13. Authority.** Where used in the code, "authority having jurisdiction" means the enforcing agency in accordance with the act, as defined in R 408.30828. The code shall be administered and enforced by the enforcing agency in accordance with the act.

R 408.30810

**80.14. Duties and powers of the code official.** The code official shall enforce the provisions of the code and shall act on any question relative to the installation, alteration, repair, maintenance, or operation of electrical wiring and equipment, except as otherwise specifically provided for by statute.

R 408.30811

**80.15. Means of appeal.** A person may appeal a decision of the enforcing agency to the board of appeals. An application for appeal shall be based on a claim that the true intent of the code or the rules governing construction have been incorrectly interpreted, the provisions of the code do not apply, or an equal or better form of construction is proposed. The application shall be filed under the act.

**80.15.1. Limitation of authority.** The board of appeals shall have no authority relative to interpretation of the administration of the code nor shall such board be empowered to waive requirements of the code.

R 408.30812

**80.18. Maintenance of existing wiring.** Every building, structure, or part thereof shall be kept in good electrical repair by the owner.

R 408.30815

**80.18.1. Disconnection of dangerous electrical equipment.** If the use of any electrical equipment is found imminently dangerous to human life or property, the enforcing agency may condemn the equipment or disconnect it from its source of electric supply, except that the enforcing agency shall not disconnect the service entrance equipment or utility service drop wires unless the entrance equipment or utility wires in themselves constitute a hazard to life or property. If the enforcing agency condemns or disconnects dangerous equipment, then the agency shall place a red tag on the equipment listing the causes for the condemnation or disconnection and the penalty under the act for the unlawful use of the equipment. The agency shall give written notice of the condemnation or disconnection and the causes for condemning or disconnecting the equipment to the owner or the occupant of the building, structure, or premises. A person shall not remove the tag or reconnect the electrical equipment to its source of electric supply, or use or permit the use of electrical current in the electrical equipment, until the causes for the condemnation or disconnection are remedied and a permit for the electrical repairs of the equipment is obtained from the enforcing agency.

R 408.30817

**80.19. Permits and certificates.** A person shall not equip a building with electrical conductors or equipment or make an alteration of, change in, or addition to, electrical conductors or equipment without receiving a written permit to do the work described. If the electrical installation or alterations of, changes in, or addition to, electrical conductors or equipment are found to be in compliance with the provisions of the code and if the work has passed the inspection of the enforcing agency, then the enforcing agency shall, upon the request of the permit holder to whom the permit was issued, issue a certificate of final electrical inspection. The certificate certifies that the provisions of the code have been complied with. This section does not apply to installations that are referred to in section 7(3)(a), (b), (c), (d), (e), (f), (h), (k), (l), or (o) of 1956 PA 217, MCL 338.887.

**80.19.1. To whom permits are issued.** (1) To obtain an electrical permit, an applicant shall be 1 of the following:

(a) A holder of an electrical contractor license or the qualifying master for the electrical contractor when authorized by the electrical contractor to secure a permit.

(b) A person, firm, or corporation holding an affidavit as provided by R 338.1039a.

(c) A homeowner who occupies or will occupy a single-family dwelling and other accessory structures located on the same lot intended for use by the homeowner for which the permit is obtained and who will install the electrical equipment as certified by the homeowner on the permit application in accordance with the act.

(2) To obtain a permit for a fire alarm system, as defined in section 1a(1) of 1956 PA 217, MCL 338.881a (1), an applicant shall be 1 of the following:

(a) A holder of an electrical contractor license.



(b) A holder of a fire alarm specialty contractor license or the qualifying fire alarm specialty technician qualifying the fire alarm specialty contractor when authorized by the fire alarm specialty contractor to secure a permit.

(c) A homeowner qualifying under section 80.19.1(1)(c) of the code.

(3) To obtain a permit for an electrical sign or outline lighting, as defined in section 1b(1) and (2) of 1956 PA 217, MCL 338.881b(1) and (2), an applicant shall be 1 of the following:

(a) A holder of an electrical contractor license.

(b) A holder of a sign specialty contractor license or the sign specialty technician qualifying the sign specialty contractor when authorized by the sign specialty contractor to secure a permit.

(c) A homeowner qualifying under section 80.19.1(1)(c) of the code.

(4) To obtain a permit for electrical wiring associated with the installation, removal, alteration, or repair of a water well pump on a single-family dwelling to the first point of attachment in the house from the well, an applicant shall be 1 of the following:

(a) A holder of an electrical contractor license.

(b) A registered pump installer under part 127 of 1978 PA 368, MCL 333.12701 to 333.12771.

(c) A homeowner qualifying under section 80.19.1(1)(c) of the code.

(5) To obtain a permit for wiring associated with existing mechanical and plumbing systems referenced in section 7(3)(i) of 1956 PA 217, MCL 338.887(3)(i), a person shall be 1 of the following:

(a) A holder of an electrical contractor license or the qualifying master for the electrical contractor when authorized by the electrical contractor to secure a permit.

(b) A holder of a mechanical contractor license issued in accordance with section 6(3)(a), (b), (d), (e), and (f) of 1984 PA 192, MCL 338.976(3)(a), (b), (d), (e), and (f).

(c) A holder of a plumbing contractor license issued in accordance with 2002 PA 733, MCL 338.3511 to 338.3569.

**80.19.2. Application for permit.** Each application for a permit, with the required fee, shall be filed with the code official on a form furnished for that purpose and shall contain a general description of the proposed work and its location. The permit application shall contain all applicable information in accordance with the act and shall include the signature of the applicant in compliance with section 80.19.1 of the code.

**80.19.3. Permit expiration.** If work for which a permit is issued is not started within 6 months of the date of permit issuance or if work is abandoned for a period of 6 months, then the permit shall lapse and cease to be in effect.

**80.19.4. Uncompleted installation notification.** If a person to whom a permit is issued for the installation and inspection of electrical conductors and electrical equipment quits the installation for any reason, then the person shall notify the enforcing agency.

**80.19.5. Inspection and refunds for partial installation.** If an installation is partially completed, then a permit holder, upon quitting the installation, shall notify the enforcing agency and shall request an inspection. The inspector shall record the acceptance of, or violations against, the work installed on the permit record according to the findings of the inspector. The enforcing agency shall not grant a refund to the permit holder of the permit fee covering electrical equipment installed and inspected.

**80.19.6. Owner notification to enforcing agency.** If a permit holder quits an installation after the electrical equipment is installed and fails to notify the enforcing agency, then the building owner or his or her agent may notify the enforcing agency and request inspection. Upon inspection, the enforcing agency shall send the permit holder a notice of a violation. The owner may then secure another licensed contractor to proceed with the work if the new contractor is properly covered by a permit.

**80.19.7. Transfer of permit.** An electrical permit is not transferable.

**80.19.8. Fraudulent application for permit.** A permit that is issued in violation of the laws of this state or as a result of false or fraudulent information or misinterpretation of conditions is subject to revocation at the direction of the enforcing agency. The enforcing agency shall notify the person holding the permit to appear and show cause why the permit should not be revoked. Failure to appear is sufficient grounds for revocation of the permit.

R 408.30818

**80.20. Representative on jobsite.** The enforcing agency reserves the right to require a representative of the permit holder to be on the job when an inspection is made.

**80.20.1. Licensed supervision required.** A person who is licensed under 1956 PA 217, MCL 338.881 et seq., and who is employed by and represents the permit holder who is responsible for the electrical installation shall be present at all times when electrical construction is in progress.

R 408.30820

**80.21. Plans and specifications.** An applicant shall submit a detailed set of plans and specifications with the application for an electrical permit for any wiring or alteration to an electrical system if the system requires installation of electrical equipment that has an ampacity of more than 400 amperes for the service or feeder and if the calculated floor area in a building is more than 3,500 square feet. The enforcing agency may request plans for projects that include an unusual design. The electrical drawings shall include all of the following details:

- (a) Lighting layout.
- (b) Circuiting.
- (c) Switching.
- (d) Conductor and raceway sizes.

- (e) Wattage schedule.
- (f) Service location and riser diagram.
- (g) Load calculations.
- (h) A proposed method of construction that is drawn with symbols of a standard form.

All conductors are assumed to be copper unless otherwise stated in the plan. Specifications, when provided, shall also include the information listed in this rule. The selection of suitable disconnect and overcurrent devices to provide proper coordination and interrupting capacity for a wiring system is the responsibility of the designer. The enforcing agency, when approving electrical plans, does not assume responsibility for the design or for any deviations from any electrical drawings. The permit holder shall ensure that the plans and specifications approved by the enforcing agency, or a certified copy of the plans and specifications, where required, are available on the jobsite for the use of the enforcing agency.

**80.21.1. Preparation of plans.** An architect or engineer shall prepare, or supervise the preparation of, all plans and specifications for new construction work or repair, expansion, addition, or modification work. The architect or engineer shall be licensed under 1980 PA 299, MCL 339.101 to 339.2919. The plans and specifications shall bear the architect's or engineer's signature and seal.

Note: For exceptions, see 1980 PA 299, MCL 339.101 to 339.2919.

**80.21.2. Review of construction documents.** The enforcing agency shall review the application, construction documents, and other data filed by an applicant for a permit. If the enforcing agency finds that the proposed work conforms to the requirements of the code and related laws and ordinances and that the fees are paid, then the agency shall issue a permit to the applicant.

R 408.30819

**80.22. Scheduling inspection.** An enforcing agency shall be given not less than 24 hours' notice to inspect electrical equipment. An enforcing agency shall perform the inspection within a reasonable period of time after the request for inspection is made.

**80.22.1. Inspection notice.** Only the enforcing agency shall post a notice of inspection at, or remove a notice from, the jobsite. The enforcing agency shall maintain a record of all inspections.

**80.22.2. Concealing electrical installation.** A person shall not conceal, or cause to be concealed, any conductors and equipment before the equipment is approved by the enforcing agency.

R 408.30822

**80.23. Violations.** If it is found that any electrical equipment does not conform to the provisions of the code, then the enforcing agency shall notify, in writing, the person who installs, or who is responsible for installing, the electrical equipment, in

accordance with the act, of the defect, misuse, or violation. Violations and penalties shall be as specified in the act.

R 408.30826

**80.24. Fees.** The fees prescribed by section 22 of 1972 PA 230, MCL 125.1522, shall be paid to the enforcing agency of the jurisdiction before a permit to begin work for new construction, alteration, removal, demolition, or other building operation may be issued. In addition, an amendment to a permit necessitating an additional fee shall not be approved until the additional fee is paid.

R 408.30824

**80.25. Connection to electricity supply.** Except where work is performed under an annual permit or except as otherwise provided in the code, a person, firm, or corporation shall not make connection to a supply of electricity or to supply electricity to any electric equipment installation for which a permit is required or that has been disconnected or ordered to be disconnected.

R 408.30823

**80.26. Service equipment.** The enforcing agency shall approve service equipment installed, altered, or repaired before the load side of the meter is energized.

R 408.30827

## **ARTICLE 90 INTRODUCTION**

**90.3. Code arrangement.** The code includes an administration section. Additionally, the code is divided into the introduction and 9 chapters. Chapters 1, 2, 3, and 4 apply generally; chapters 5, 6, and 7 apply to special occupancies, special equipment, or other special conditions. Chapters 5, 6, and 7 supplement or modify the general rules. Chapters 1 to 4 apply except as amended by chapters 5, 6, and 7 for the particular conditions.

Chapter 8 covers communications systems and is not subject to the requirements of chapters 1 to 7 except where the requirements are specifically referenced in chapter 8.

Chapter 9 consists of tables.

Annexes are not part of the requirements of the code but are included for informational purposes only.

R 408.30813

**90.4. Enforcement.** The code is intended to be suitable for mandatory application by governmental bodies that exercise legal jurisdiction over electrical installations, including signaling and communications systems. The enforcing agency shall interpret the rules, decide on the approval of equipment and materials, and grant special permission set forth in the rules.

By special permission, the enforcing agency may permit alternative methods where equivalent objectives may be achieved by establishing and maintaining effective safety.

**90.6. Formal interpretations.** Formal interpretations shall be issued in accordance with 1972 PA 230, MCL 125.1501 et seq.  
R 408.30814

## **ARTICLE 100 DEFINITIONS**

### **100. Definitions.**

The definitions of authority having jurisdiction, dwelling unit, dwelling, 1-family, dwelling, 2-family, and dwelling, multifamily in article 100 of the code are amended and the definitions of act, chief electrical inspector, code official, electrical inspector, and enforcing agency are added to article 100 of the code to read as follows:

**"Act"** means 1972 PA 230, MCL 125.1501 to 125.1531 and known as the Stille-DeRossett-Hale single state construction code act.

**"Authority having jurisdiction"** where used in the code means the enforcing agency.

**"Dwelling unit"** means a single unit providing complete independent living facilities for 1 or more persons, including permanent provisions for living, sleeping, eating, cooking, and sanitation.

**"Dwelling, 1-family"** means a building that consists solely of 1 dwelling unit complying with the provisions of the Michigan residential code.

**"Dwelling, 2-family"** means a building that consists solely of 2 dwelling units complying with the provisions of the Michigan residential code.

**"Dwelling, multifamily"** means a building that contains 3 or more dwelling units. Residential occupancies containing more than 2 dwelling units where the occupants are primarily permanent in nature, including all of the following:

1. Apartment houses.
2. Boarding housing, not transient.
3. Convents.
4. Dormitories.
5. Fraternities and sororities.
6. Monasteries.

**"Chief electrical inspector"** where used in the code means the code official.

**"Code official"** means a person who is appointed and employed by a governmental subdivision who is charged with the administration and enforcement of the state code or codes, and who is registered in accordance with 1986 PA 54, MCL 338.2301 to 338.2313.

**"Electrical inspector"** where used in the code means the code official.

**"Enforcing agency"** means the enforcing agency, in accordance with the act, which is responsible for administration and enforcement of the code within a governmental subdivision, except for the purposes of the act.

R 408.30828

## **ARTICLE 110 REQUIREMENTS FOR ELECTRICAL INSTALLATIONS**

**110.2. Approval.** Materials, equipment, and devices shall be constructed and installed in accordance with approvals granted under section 21 of 1972 PA 230, MCL 125.1521, or by the code official.

R 408.30829

## **ARTICLE 230 SERVICES**

**230.40. Number of Service-Entrance Conductor Sets.** Each service drop or lateral shall supply 1 set of service-entrance conductors.

**Exception 1:** A building may have 1 set of service-entrance conductors for each service, as defined in section 230.2 of the code, run to each occupancy or group of occupancies.

**Exception 2:** Where 2 to 6 service disconnecting means in separate enclosures are grouped at 1 location and supply separate loads from 1 service drop or lateral, 1 set of service-entrance conductors may supply each or several such service equipment enclosures.

**Exception 3:** A 2-family dwelling or a multifamily dwelling may have 1 set of service-entrance conductors installed to supply the circuits covered in section 210.25 of the code.

**Exception 4:** One set of service-entrance conductors connected to the supply side of the normal service disconnecting means may supply each or several systems covered by section 230.82(4) or section 230.82(5) of the code.

R 408.30835

**230.71(A). General.** The service disconnecting means for each service permitted by section 230.2 of the code, or for each set of service-entrance conductors permitted by section 230.40, exception nos. 1, 2, 3, or 4, of the code, shall consist of not more than 6 switches or sets of circuit breakers, or a combination of not more than 6 switches and sets of circuit breakers, mounted in a single enclosure, in a group of separate enclosures, in a switchboard or on a switchboard. There shall be not more than 6 sets of disconnects per service grouped in any 1 location. For the purpose of this section, disconnecting means used solely for power monitoring equipment, transient voltage surge suppressors, or the control circuit of the ground-fault protection system or power-operable service disconnecting means, installed as part of the listed equipment, shall not be considered a service disconnecting means.

R 408.30834

## **ARTICLE 250 GROUNDING**

**250.118. Types of equipment grounding conductors.** The equipment grounding conductor run with or enclosing the circuit conductors shall be 1 or more or a combination of the following:

(1) A copper, aluminum, or copper-clad aluminum conductor. This conductor shall be solid or stranded; insulated, covered, or bare; and, in the form of a wire or a busbar of any shape.

(2) Rigid metal conduit.

(3) Intermediate metal conduit.

(4) Electrical metallic tubing.

(5) Flexible metallic tubing where the tubing is terminated in fittings listed for grounding and meeting both of the following conditions:

(a) The circuit conductors contained in the tubing are protected by overcurrent devices rated at 20 amperes or less.

(b) The length of flexible metallic tubing in the ground return path does not exceed 1.8m (6 feet).

(6) Armor of type AC cable as provided in section 320.108 of the code.

(7) The copper sheath of mineral-insulated, metal-sheathed cable.

(8) Type MC cable where listed and identified for grounding in accordance with both of the following:

(a) The combined metallic sheath and grounding conductor of interlocked metal tape-type MC cable.

(b) The metallic sheath or the combined metallic sheath and grounding conductors of the smooth or corrugated tube type MC cable.

(9) Cable trays as permitted by sections 392.3(c) and 392.7 of the code.

(10) Cablebus framework as permitted by section 370.3 of the code.

(11) Other listed electrically continuous metal raceways and listed auxiliary gutters.

(12) Surface metal raceways listed for grounding.

R 408.30869

## **ARTICLE 300 WIRING METHODS**

**300.3(b)(5). Grounded and ungrounded conductor sources.** Grounded and associated ungrounded circuit conductors for 2, 3, or 4-wire circuits shall all originate at the same source in the wiring system. A grounded conductor shall not be used for more than 1 multi-wire branch circuit.

R 408.30835

## **ARTICLE 334 NONMETALLIC-SHEATHED CABLE: TYPES NM, NMC, AND NMS**

**334.10. Uses Permitted.** Type NM, type NMC, and type NMS cables may be used in the following:

(1) One- and 2-family dwellings.

(2) Multifamily dwellings except as prohibited in section 334.12 of the code.

(3) Other structures except as prohibited in section 334.12 of the code. In structures exceeding 1 floor above grade, cables shall be concealed within walls, floors, or ceilings that provide a thermal barrier of material that has at least a 15-minute finish rating as identified in listings of fire rated assemblies in accordance with the Michigan building code.

(4) Cable trays in structures permitted to be types III, IV, or V where the cables are identified for the use.

R 408.30873

## **ARTICLE 348 FLEXIBLE METAL CONDUIT**

**348.60. An equipment grounding conductor or equipment bonding jumpers shall be installed.** Equipment grounding conductors shall be installed in accordance with section 250.134(B) of the code. Equipment bonding jumpers shall be installed in accordance with section 250.102 of the code.

R 408.30867

## **ARTICLE 350 LIQUIDTIGHT FLEXIBLE METAL CONDUIT**

**350.60. An equipment grounding conductor or equipment bonding jumpers shall be installed.** Equipment grounding conductors shall be installed in accordance with section 250.134(B) of the code. Equipment bonding jumpers shall be installed in accordance with section 250.102 of the code.

R 408.30868



## **INDEX**

Application.....	2
Application for permit .....	5
Approval .....	10
Authority .....	3
Code arrangement .....	8
Code conformity required.....	2
Concealing electrical installation .....	7
Connection to electricity supply.....	8
Definitions .....	9
Disconnection of dangerous electrical equipment.....	4
Duties and powers of the code official.....	3
Enforcement.....	8
Fees .....	8
Formal interpretations.....	9
Fraudulent application for permit.....	6
Grounded and ungrounded conductor sources .....	11
Grounding conductors – types of equipment.....	11
Grounding of flexible metal conduit .....	12
Grounding of liquidtight flexible metal conduit .....	12
Inspection and refunds for partial installation .....	6
Inspection notice .....	7
Intent .....	2
Licensed supervision required.....	6
Limitation of authority .....	3
Maintenance of existing wiring .....	4
Means of appeal.....	3
Nonmetallic –sheathed cable: Types NM, NMC, and NMS .....	11
Occupancy of building or structure.....	3
Owner notification to enforcing agency .....	6
Permit expiration .....	5
Permits and certificates.....	4
Plans and specifications.....	6
Preparation of plans .....	7
Purpose.....	2
Representative on jobsite.....	6
Review of construction documents.....	7
Scheduling inspection .....	7
Scope .....	2
Services .....	10
Service equipment .....	8
Severability .....	2
To whom permits are issued .....	4

Transfer of permit.....	6
Uncompleted installation notification .....	5
Violations.....	7

## Department of Labor & Economic Growth

### *Bureau of Construction Codes*

#### **Mailing Addresses:**

P.O. Box 30254 (Codes: general correspondence, Office of Local Government and Consumer Services)

P.O. Box 30255 (Codes: permits, licenses, and other documents containing payments)

P.O. Box 30704 (Office of Land Survey and Remonumentation)

Lansing, Michigan 48909

#### **Physical Addresses:**

**2501 Woodlake Circle, Okemos** – Administration; Office of Administrative Services **Fax:** 517-241-9570

Office of Management Services; Plumbing Division **Fax:** 517-373-8547

Office of Local Government and Consumer Services; Building Division; Electrical Division; Mechanical Division; and Plan Review Division **Fax:** 517-241-9308

**6546 Mercantile Way, Lansing** – Office of Land Survey and Remonumentation; Elevator Safety Division; and Boiler Division **Fax:** 517-241-6301

**Web site:** [www.michigan.gov/bcc](http://www.michigan.gov/bcc)

#### **Telephone Numbers:**

Administration .....	517-241-9302
Office of Administrative Services (OAS) .....	517-335-2972
Office of Management Services (OMS) .....	517-241-9313
Boiler Division .....	517-241-9334
Building Division .....	517-241-9317
Electrical Division .....	517-241-9320
Elevator Safety Division .....	517-241-9337
Mechanical Division .....	517-241-9325
Office of Land Survey and Remonumentation (OLSR) .....	517-241-6321
Office of Local Government and Consumer Services (OLGCS) .....	517-241-9347
Plan Review Division .....	517-241-9328
Plumbing Division .....	517-241-9330